S. HRG. 98-20

PUBLIC LAW 97–219, THE SMALL BUSINESS INNOVATION DEVELOPMENT ACT

HEARING

BEFORE THE

SUBCOMMITTEE ON INNOVATION AND TECHNOLOGY

OF THE

COMMITTEE ON SMALL BUSINESS UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

ON

PUBLIC LAW 97-219, THE SMALL BUSINESS INNOVATION DEVELOPMENT ACT

MARCH 16, 1983

Printed for the use of the Committee on Small Business

U.S. GOVERNMENT PRINTING OFFICE

18-501 O WASHINGTON : 1983

5721-12

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March 16, 1983:

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PUBLIC LAW 97–219, THE SMALL BUSINESS INNOVATION DEVELOPMENT ACT

WEDNESDAY, MARCH 16, 1983

U.S. SENATE,
SUBCOMMITTEE ON INNOVATION AND TECHNOLOGY,
SMALL BUSINESS COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:30 a.m., in room SR428A, Russell Senate Office Building, Hon. Warren Rudman (chairman of the subcommittee) presiding.

Present: Senators Rudman and Tsongas.

Staff present: Lee Mercer, professional staff member; Anne H. Sullivan, professional staff member; Dorothy C. Olson, calendar clerk.

STATEMENT OF HON. WARREN RUDMAN, A U.S. SENATOR FROM THE STATE OF NEW HAMPSHIRE

Senator RUDMAN. The Subcommittee on Innovation and Technology of the Senate Small Business Committee is now in session.

This subcommittee has oversight responsibility with respect to the Innovation Development Act of 1982, which has been very enthusiastically received around the country. In fact, conferences being held around the country are sellouts. They cannot accommodate the number of people who are attending these conferences. There are groups forming in every State in this Nation to participate in this program. The people who are attending these conferences are not Rube Goldbergs. They are not people who are without background. They are mostly extraordinarily talented engineers and scientists, many of whom have come out of university laboratories. What they do they do very well, and I expect that we will see an enormous fallout, in terms of private investment and jobs, from this program.

NASA should be one of the best programs, but it will probably be one of the worst. We had anticipated the fiscal year 1983 program to be around $11 million. We are now told it will only be $3.3 million. We have a GAO report which I can tell you for the record, as one who understands the English language, is probably one of the greatest collective nonsequiturs I have ever seen in my life. It's finding with respect to the NASA shuttle program is totally unsupported and is conclusionary in nature.

We invited OMB to testify this morning, but they have declined. On the March 4, 1983, Frederick Khedouri, an Associate OMB Director, said in a letter to Berkley Bedell, chairman of the House Small Business Subcommittee on General Oversight that "David

Stockman gave a personal commitment to Senator Rudman that OMB would insure that all Federal agencies made a good-faith effort to carry out the law to achieve the purposes that Congress intended." What is clear is that Congress certainly did consider that the Space Shuttle would be included in NASA's R&D base and so did NASA. I have transcripts of testimony before the committee that I think will indicate that.

OMB has chosen not to testify, and I do not blame them for not being here. They ought to be embarrassed. But what this really proves to me is something I have suspected for a long time: The President of the United States does not run the country; Congress does not run the country; the bureaucracy runs the country.

I will call on the witnesses from NASA, but first I will call on my colleague, Senator Tsongas, if he wishes to make any opening remarks.

Thank you very much for being here, Paul.

STATEMENT OF HON. PAUL E. TSONGAS, A U.S. SENATOR FROM THE STATE OF MASSACHUSETTS

Senator TSONGAS. The last time I was in this room, Senator D'Amato was here blasting the administration. Now you are here doing it. To be bipartisan, I have to be critical then.

I would like to submit for the record a statement that I have.

You really do get the impression that what we are getting is lip service on this initiative. The thing gets passed through the Congress without any serious opposition. There is a Rose Garden ceremony, and the President says Small Business is the "tonic" that will help "cure" America—however he phrased that. Clearly, NASA goes out of its way to see a definition of research and development that cuts their commitment to the program from $11 to $3.3 million.

Now, we are all adults here. I do not know who is kidding whom. What I am bothered by is not so much the definition, because I think that is arguable, but the fact that NASA went out of its way to contact the GAO and get an opinion with the obvious objective of reducing their commitment beyond the numbers that we all talked about.

Unfortunately, I have a conflict of committees at 10 o'clock. But I want to know what the President knew about all this, is he aware of the 75-percent cut, and why NASA found it important to initiate the definition of research and development. If we are going to get stalled on this thing, I do not see the point. The Congress has spoken—however illegitimate, ill conceived some may perceive that speaking to be is irrelevant. There are such things as laws, and I would hope we get some answers today.

I would say to the chairman, if these agencies are going to play this game, they should be brought before the committee. To use the President's terminology, if they cannot see the light, we will make them feel the heat.

I think everyone agrees that innovation and small business are virtually synonymous. Here we are trying to promote it, and rather than being assisted by the administration or some agencies, we are being thwarted. So I would ask that the statement I have here

today be included in the record. I am fascinated to look forward at what they are coming up with.

I do not accept the notion that somehow the President does not run the country. I think we do, and I think he does. I, for one, have no stomach to turning it over to any bureaucracy, whether it is under a Republican or a Democratic administration. So I am looking forward to the testimony.

Senator RUDMAN. Thank you very much. I would just add to your comments that this effort, which appears at this point to have been successful, was preceded by an effort on the appropriations bill for fiscal year 1983, in which we discovered a footnote which had been worked out between the staff of that committee and some of the NASA witnesses that are here this morning that was going to reduce it to $1.5 million. At that time there was no discussion of this particular reason for it, but simply that it was too much to start out with and there had to be more of a transition. Of course, the transition was worked out in the legislation. It eventually goes to 1.25 percent, starting out at two-tenths of 1 percent.

I call on the witnesses. I believe we have Mr. Evans here this morning and others from NASA. I would ask them to come forward, Mr. Schwenk and Mr. Newman.

Senator TSONGAS. Mr. Chairman, while they are coming up I will say, as long as you have a Congress and an administration, irrespective of parties, you are always going to have the problem of any administration looking at the Congress as interlopers. I think it is the nature of the beast. If you were President or I were President, we would have the same attitude. The problem is not going to go away; we are just going to have to be continually fighting it.

[The prepared statement of Senator Tsongas follows:]

STATEMENT OF HON. PAUL E. TSONGAS, A U.S. SENATOR FROM THE STATE OF MASSACHUSETTS

Mr. Chairman and Members of the Committee, I would like to thank the Chairman for the opportunity to make a brief statement.

First, let me say that it is my understanding that the National Aeronautics and Space Administration has done a good job of implementing the small business earmarking program required by the Small Business Innovation Act. I would like to commend those before the Committee today for the efforts that have been taken to date.

My primary concern is with the level of funding NASA intends to commit to the Small Business Innovation Program. It is my understanding that NASA has sought an opinion from GAO and contends on the basis of that opinion that its commitment to this important program should be reduced from roughly $11 million to $3.3 million. I would like to register my strong objection to that reduced commitment, and note that I am surprised by the steps NASA has initiated to reduce its commitment to the program.

Much will be said today on how research and development should be defined and on the merits of GAO's assessment of accounting distinctions and NASA's use of them.

These are important considerations, but I would like to raise some more fundamental concerns.

During the entire debate in the Senate on this bill, it was assumed by all parties that roughly $11 million would be contributed by NASA. The percentages of R&D budgets earmarked in the bill and all negotiations were based on this assumption. Even SBA's initial release on the SBIR program showed a similar level of commitment from NASA.

Then after the President's Rose Garden ceremony where the commitment of the Administration to small business was underscored, NASA goes to GAO seeking an opinion that would reduce its level of commitments.

Does the President know you sought a ruling to cut this program by 75 percent from the levels the President was told would be there?

Why does NASA seek to reduce its participation in this program? Does it doubt the merits of the program?

In my opinion, we have a case here where all parties understood the nature of the commitment, and NASA now seeks to use a technicality to renege on its portion. I fail to see why. And should we all agree on the appropriateness of the definitions NASA puts forward for S&D, which I am not fully prepared to do, the question still stands—why are you seeking to reduce your participation in this important program?

Surely it cannot be because the Space Shuttle program is so old-hat that there is no innovation to be gained from expenditures for its purposes.

If we accept the argument and definitions you offer today, perhaps we need to consider earmarking a greater percentage of the R&D budget that remains.

I look forward to a resolution of this matter. I think it is possible to accept the technical point made here today without endangering the level of commitment. That is my hope.

I thank the Chairman and members of the Committee.

STATEMENT OF ADM. S. J. EVANS, ASSISTANT ADMINISTRATOR FOR PROCUREMENT, NASA, ACCOMPANIED BY C. THOMAS NEWMAN, NASA COMPTROLLER; AND FRANCIS C. SCHWENK, NASA SBIR MANAGER

Admiral EVANS. Thank you, Mr. Chairman. With your consent, I will summarize my testimony and I would request that my full statement be placed in the record.

Senator RUDMAN. We appreciate that, and your entire statement will be placed in the record without objection.

[The prepared statement of Admiral Evans follows:]

NASA
National Aeronautics and Space Administration

Hold for Release Until
Presented by Witness
March 16, 1983

Committee on Small Business

United States Senate

Statement by:
Stuart J. Evans
Assistant Administrator for Procurement

25th Anniversary
1958-1983

98th Congress

HOLD FOR RELEASE UNTIL
PRESENTED BY WITNESS

STATEMENT OF
STUART J. EVANS
ASSISTANT ADMINISTRATOR FOR PROCUREMENT
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
BEFORE
THE COMMITTEE ON SMALL BUSINESS
UNITED STATES SENATE

MARCH 16, 1983

Mr. Chairman and Members of the Committee.

By letter of February 22, 1983, you invited NASA to appear before this Committee to set forth the steps the Agency has taken to put into effect the Small Business Innovation Research (SBIR) Program established by P.L. 97-219 on July 22, 1982. You further expressed a particular interest in the amount of funds designated for the program and the nature of the solicitation that NASA will promulgate. We are pleased to respond and appreciate the opportunity to appear today.

Accompanying me today are Mr. Charles T. Newman, NASA Comptroller, and Mr. Francis C. Schwenk, NASA SBIR Manager.

Over its twenty-five year life span, I believe NASA has been recognized as one of the leaders in Federal research and development and innovation in many fields of science, heretofore untried. From the creation of the Agency in 1958, the operations and results of the United States in space and in aeronautics have been based upon a partnership of Government, the science and educational communities and the industrial sector. NASA has consistently sought private innovation and placed great reliance upon the private sector of the country for the development and execution of the programs we have carried out. This reliance is best illustrated by the fact that year after year approximately 85 percent of the funds authorized and appropriated by the Congress for NASA have flowed to the private sector through the process of procurement. We thus view the Small Business Innovation Development Act of 1982 as a specific program paralleling Agency activities which have gone on for years.

Since enactment of P.L. 97-219, we have been engaged in two parallel efforts: (1) working with the Small Business Administration in its development of policy direction required by Section 4 of the Act and (2) laying the ground work for

execution of the Small Business Innovation Development Program within NASA itself. In fact, an implementation planning meeting was held on July 23, 1982, one day following enactment of the bill, after which we set about creating an organization within NASA to execute this program as promptly and efficiently as possible.

In the conduct of all its operations, NASA exercises a centralized, control, direction, and review of Agency activities while consistently providing for decentralized execution of all Agency operations. Under this management style, 96 percent of all NASA procurement activities take place in the eight NASA centers. In structuring our SBIR program, we pursued this style of management by establishing a central program management office at NASA Headquarters for direction, control, review, and reporting and simultaneously providing for execution of contracts and subsequent administration through our eight centers. On December 13, 1982, NASA's Administrator officially established our Small Business Innovation Research Program Office within the Office of Aeronautics and Space Technology at NASA Headquarters. This new program office was given full responsibility for implementing and managing the Agency's SBIR program while ensuring the participation of NASA centers and program offices in the selection of research topics and in the recommendation and management of project awards. The program office published its implementation plan on December 17, 1982, and simultaneously issued a request to all NASA centers for SBIR research topics.

In accordance with the Small Business Administration's Policy Directive 65-01, NASA informed that agency, by letter of January 26, 1983, of the topics to be included in our program solicitation and its target release date. A meeting of SBIR focal points from the centers and program offices was convened at NASA Headquarters February 1 and 2 in order to make final determinations on topics and subtopics and clarify implementation issues.

Concurrently, NASA has proceeded with development of its SBIR Program Solicitation following the guidelines set forth by the Small Business Administration in its Policy Directive 65-01. The solicitation has been forwarded to the printers, and we anticipate its release by the end of March. This date has been coordinated with the Small Business Administration and released to the public in an SBA Presolicitation Announcement. We have tried to schedule our Program Solicitation so as to allow sufficient time for the development of comprehensive topics while still providing sufficient time for proposal preparation, Government evaluation, and award of Phase I contracts in fiscal year 1983.

NASA will distribute 15,000 copies of its Program Solicitation using the Small Business Administration's Procurement Automated Source System (PASS), which now contains approximately 13,000 research and development firms, as well as a source list developed by NASA of firms that have requested copies of our SBIR Program Solicitation. NASA's Program Solicitation reflects our philosophy of centralized program management and decentralized program execution. Specifically, it requires submission of all proposals to NASA Headquarters, where the SBIR Program Office will conduct an initial screening to determine basic qualification factors such as whether the firm has certified that it is a small business and has met the proposal-size limitations.

Proposals will then be sorted by subtopic. Each subtopic has a designated manager, an expert in that technical area, located at a NASA center. All centers are involved in this program, with a topic list of 26 major areas and a total of 210 subtopics. Proposals will be sent to the appropriate topic manager, who will initially review them to determine if they are in fact responsive to the topic designated by the offeror and, if so, then have independent technical evaluations performed by scientists or engineers knowledgeable in the topic area. These evaluations will be in accordance with the factors listed in Section 5.2 of the Program Solicitation.

1. The scientific/technical quality of the Phase I research proposal and its relevance to the proposal's stated objectives, with special emphasis on its innovation and originality.

2. Qualifications of the principal investigator, other key staff, and consultants, if any, and the adequacy of available or obtainable instrumentation and facilities.

3. Anticipated benefits, technical and/or economic, including potential commercial application, of the proposed research (Phase I and Phase II), if successful.

4. Adequacy of the proposed work plan to show progress toward meeting the objectives of the Phase I effort.

The individual reviews will be consolidated, and recommendations will be forwarded to the SBIR Program Office at NASA Headquarters. A board will review all recommendations and make final selections based on the recommendations and on overall considerations such as possible duplication of other research and program balance. The center procurement offices involved will then be directed to award Phase I contracts.

Since SBIR is a new program for NASA, we have no base from which to predict the volume of proposals that will result. We have, however, planned as much as possible to handle the proposal process efficiently, effectively, and in such a way as to minimize the effort required by offerors. For example, we have eliminated the need for all offerors to read and analyze numerous required contract clauses and provisions and complete intricate certifications and representations by summarizing simply and in general terms in the solicitation the required clauses and virtually eliminating the certifications. Only successful offerors will be required to master the detail requirements.

In summary, NASA has responded actively and positively to set up a SBIR Program that is responsive to the legislation, the needs of the small business research and development community, and NASA's own mission needs.

I will now address the second matter of interest to the Committee - namely the amount of funds designated for the FY 1983 SBIR Program.

On July 4, 1982, upon the successful landing of Columbia at Edwards Air Force Base, California, after a ten year period of development, the test and evaluation flights of the national Space Transportation System were completed and the President declared the system operational. The system is now a national Space Transportation System operated to fulfill national and international, Government and commercial needs for space transportation. The first operational flight of Columbia occurred in November 1982, successfully deploying two commercial payloads into orbit: a Satellite Business System Inc. SBS-B Communications Satellite and the TELESAT-E Communications Satellite.

With the national Space Transportation System operational, the character of the Agency in the short term has changed in many respects to where a substantial portion of Agency effort will be directed toward assuring regular STS flights on an increasing basis. The budget for NASA for fiscal year 1983, submitted on January 20, 1982, anticipated a successful completion of the design, development, test, and evaluation phase of the STS program and substantially reflected the operational character of the Space Transportation System as well as those systems directly supporting such operations.

This change in the character of the FY 1983 budget request is further clearly reflected in the 1983 NASA Authorization Act,

P.L. 97-324 and the House Science and Technology Committee Report 97-502 accompanying H.R. 5890.

The Small Business Innovation Act of 1982 requires among other provisions, in Section 4(f)(1) that:

> "Each Federal Agency which has an extramural budget for research or research and development in excess of $100,000,000 for fiscal year 1982, or any fiscal year thereafter, shall expend not less than .2 per centum of its extramural budget in fiscal year 1983, or in such subsequent fiscal year as the agency has such budget not less than .6 per centum of such budget in the second fiscal year thereafter, not less than 1 per centum of such budget in the third fiscal year thereafter, and not less than 1.25 per centum of such budget in all subsequent fiscal years with small business concerns in connection with a small business innovation research program which meets the requirements of the Small Business Innovation Act of 1982 and regulations issued thereunder....Provided further, that a Federal Agency shall not make available for purposes of meeting the requirements of this subsection an amount of its extramural budget for basic research or research and development which exceeds the percentages specified herein..."

Research and research and development is defined in Section 4(e)(5) as:

> The term "research" or "research and development" means any activity which is (A) a systematic intensive study directed toward greater knowledge or understanding of the subject studied; (B) a systematic study directed toward applying new knowledge to meet a recognized need; or (C) a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design development, and improvement of prototypes and new processes to meet specific requirements."

The SBIR Program required to be established under Section 4(f)(1) is specifically defined in Section 4(e)(4) as:

> "the term 'Small Business Innovation Research Program' or 'SBIR' means a program under which a portion of a Federal agency's research or research and development effort is reserved for award to small business concerns through a uniform process having -

"(A) a first phase for determining, insofar as possible, the scientific and technical merit and feasibility of ideas submitted pursuant to SBIR program solicitations;

"(B) a second phase to further develop the proposed ideas to meet the particular program needs, the awarding of which shall take into consideration the scientific and technical merit and feasibility evidenced by the first phase and, where two or more proposals are evaluated as being of approximately equal scientific and technical merit and feasibility, special consideration shall be given to those proposals that have demonstrated third phase, non-Federal capital commitments; and

"(C) where appropriate, a third phase in which non-Federal capital pursues commercial applications of the research or research and development and which may also involve follow-on non-SBIR funded production contracts with a Federal agency for products or processes intended for use by the United States Government."

Finally, the statute defines the term "extramural budget" in Section 4(e)(1) as:

"the term 'extramural budget' means the sum of the total obligations minus amounts obligated for such activities by employees of the agency in or through Government-owned, Government-operated facilities, except that for the Agency of International Development it shall not include amounts obligated solely for general institutional support of international research centers or for grants to foreign countries;"

NASA believes the language of the statute, including the purposes set forth in Section 2(b), is clear on its face as to the intent of this legislation.

In the Agency's opinion, P.L. 97-219 requires the establishment of a specific small business set-aside program for the purpose of increasing small business participation in Federal research and development programs. It is equally clear that the character of the Small Business Innovation Research Program defined in the law requires a portion of a Federal agency's research or research and development effort be placed with small businesses in two specific phases of research or research and

development with a third phase involving non-Federal capital for pursuit of commercial applications or non-SBIR funded production of Government needs.

In preparation for the execution of the Small Business Innovation Research Program required by P.L. 97-219, NASA has reviewed and analyzed P.L. 97-272, making appropriations for FY 1983 to determine accurately the Agency's research effort authorized and appropriated for FY 1983 and that portion thereof applicable to the set-aside provisions of P.L. 97-219.

The appropriation structure of the National Aeronautics and Space Administration is such that "research and research and development", as defined in the Small Business Innovation Development Act, is not the total of the appropriation titled Research and Development and is so recognized by the Chairman of the Senate Subcommittee for HUD and Independent Agencies appropriations. On September 24, 1982, the Chairman of the Senate Appropriations Subcommittee on HUD and Independent Agencies introduced consideration of H.R. 6956 (making FY 1983 appropriations for HUD and Independent Agencies) with the following comments:

> "Mr. President, in reference to this small business R&D issue. I intend, at a later point, to accept an amendment to strike the Senate proviso. In agreeing to this action, I would like to note that NASA is in a somewhat unique position for two reasons. First, much of the NASA appropriation is committed to programs begun in earlier years, including the Space Shuttle, which is operated as a national system for various users. Further, a considerable portion of the appropriations account labeled 'research and development' for NASA is actually for work that is not of a research and development nature. For this reason, the bill language under the heading 'research and development' refers to 'operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law; purchase, hire, maintenance and operation of other than administrative aircraft, necessary for the conduct and support of aeronautical and space...activities.' Although I realize that final implementation of rules and regulations are presently being developed by SBA, OMB and the effected agencies, including NASA, it is my view that the provisions of Public Law 97-219 were intended to apply

only to the true research and development activities funded under this heading."

NASA has only three appropriation accounts. The Research and Program Management account provides funds for the salaries, benefits, and travel of the civil service workforce, and other administrative expenses; the Construction of Facilities account provides funds for construction, repair, rehabilitation and modification, minor construction, and planning and design of facilities; and all other requirements are funded in the Research and Development account. The Research and Development appropriation language states, "For necessary expenses, not otherwise provided for, including research, development, operations, services, minor construction, maintenance, repair, rehabilitation and modification of real and personal property; tracking and data relay satellite services as authorized by law;...etc."

Consistent with the language of the NASA appropriations statutes, the emphasis of the work funded by the research and development account over the years has shifted from one primarily directed toward research and development to one primarily directed toward production and operation of the Space Transportation System and associated tracking and data acquisition networks. This shift, which has accelerated with the completion in FY 1983 of the Space Shuttle Design, Development, Test and Evaluation program and the beginning of the operational Shuttle era, is well recognized. The report of the House of Representatives committee authorizing appropriations to NASA for FY 1983 (H.R. 97-502) states, "NASA faces a major challenge in shifting the organizational and institutional bias from a research and development character to an operational character." In FY 1983 and subsequent years, a major portion of the NASA "Research and Development" account, including most of the Space Transportation Systems and the Space Tracking and Data Systems programs, does not qualify as research and development under the definition set forth in the Small Business Innovation Development Act.

The Administration's budget for NASA submitted to the Congress in January 1983 for the fiscal year 1984 gives full recognition to the current change in emphasis from research and development to production and operation of the Space Transportation System and associated tracking and data acquisition networks.

The Special Analysis of the budget addresses this change in the following manner:

"Now that the Space Shuttle is in its operational phase, it is no longer appropriate to classify all of NASA programs as R&D. Therefore, the amounts shown for 1982, 1983, and 1984

for NASA R&D exclude funding for Shuttle production and operation, tracking and data acquisition activities, and related institutional support...."

"Space Transportation -- With the initiation of Space Shuttle operations in November 1982, the major R&D phase of the Shuttle program has been concluded. A fully operational and cost effective Shuttle is essential to exploit space effectively and to help maintain U.S. leadership in space throughout this century...."

"Table K-6 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION--RESEARCH AND DEVELOPMENT

(In millions of dollars)

Type of activity	1982 actual	1983 estimate	1984 estimate
Conduct of R&D:			
Space transportation systems	890	117	183
Space science	582	752	779
Space and terrestrial applications	319	398	289
Aeronautical research and technology	258	313	300
Space research and technology	118	131	138
Tracking and data acquisition	12	8	22
Research and program management	905	787	762
Total conduct of R&D	3,084	2,506	2,473
Total conduct of basic research, included above	(538)	(605)	(682)
R&D facilities	92	160	156
Total obligations	3,176	2,666	2,629
OUTLAYS			
Conduct of R&D	3,220	2,386	2,421
R&D facilities	109	136	129
Total outlays	3,329	2,522	2,550

Accordingly, our analysis of P.L. 97-272 and our budget justification lead us to conclude that approximately $1.6B of the total of $5.5B appropriated under the title Research and Development is in fact for research and research and development as defined in P.L. 97-219 and thus the base from which the

set-aside percentages specified in P.L. 97-219 are to be applied. The basis for this conclusion is summarized in the enclosed schedule.

Faced with the necessity for interpretation of two recent statutes, P.L. 97-219, "The Small Business Innovation Development Act of 1982", enacted into law on July 22, 1982, and P.L. 97-272, "The HUD and Independent Agencies Appropriation Act of 1983" enacted into law on September 30, 1982, the Agency sought an advance opinion by the Comptroller General of the U.S. on November 8, 1982.

In order to respond fully to P.L. 97-219, NASA proceeded with all deliberate speed to establish and execute a SBIR program consistent with the Agency's interpretation of the program at a funding level of $3.3M while remaining prepared to allocate an additional amount of $7.8M to be added to the FY 1983 Agency SBIR program should the GAO interpret these statutes in a different manner.

On March 3, 1983, the Comptroller General rendered an advanced decision (B209790) on NASA's interpretation of Public Laws 97-219 and 97-272. The digest of this decision states:

> "In calculating its 1983 set-aside for small business innovation research program, NASA should apply definition of 'research and development' that appears in Small Business Innovation Development Act, Pub. L. No. 97-219, 96 Stat. 217, July 22, 1982, to its budget for Fiscal Year 1983 without regard to appropriation heading 'Research and Development.' Since Congress clearly appropriated funds for certain operational activities under that heading, it would be contrary to congressional intent for set-aside to be based on amounts not available for research and development."

Mr. Chairman, my formal testimony is concluded. I will now be pleased to answer any questions you or members of the Committee may have.

Admiral EVANS. Mr. Chairman and members of the subcommittee, by letter of February 22, 1983, you invited NASA to appear before this committee to set forth the steps the Agency has taken to put into effect the small business innovation research program established by Public Law 97-219 on July 22, 1982. You further expressed particular interest in the amount of funds designated for the program and the nature of the solicitation that NASA will promulgate. We are pleased to respond and appreciate the opportunity to appear today.

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In the conduct of all its operations, NASA exercises a centralized control, direction, and review of Agency activites, while consistently providing for decentralized execution of Agency operations. Under this management style, 96 percent of all NASA procurement activities take place in the eight NASA centers. In structuring our SBIR program, we pursued this style of management by establishing a central program office at NASA Headquarters for direction, control, review, and reporting and simultaneously providing for the execution of contracts and subsequent administration of contracts through our eight centers. On December 13, NASA's Administrator officially established our small business innovation research program office within the Office of Aeronautics and Space Technology at NASA Headquarters. This new program office was given full responsibility for implementing and managing the Agency's SBIR program, while insuring the participation of NASA centers and program offices in the selection of research topics and in the recommendation and management of project awards. The program office published its implementation plan on December 17 and simultaneously issued a request to all centers for appropriate SBIR research topics.

In accordance with the SBA's policy directive 65-01, NASA informed that agency by letter of January 26 of the topics to be included in our program solicitation and its target release date. A meeting of SBIR focal points from all the centers and program offices was convened at NASA Headquarters on February 1 and 2, in order to make final determination on topics and clarify any details of implementation

Concurrently, we proceeded with the development of our program solicitation, following the guidelines set forth by the SBA. The solicitation has been forwarded to the printers, and we anticipate its release at the end of this month. This date has been coordinated with the Small Business Administration and released to the public in an SBA presolicitation announcement. We have tried to schedule our program solicitation so as to allow sufficient time for

the development of comprehensive topics, while still providing adequate time for proposal preparation, evaluation, and award of phase I contracts in fiscal year 1983.

We will distribute approximately 15,000 copies of this solicitation, using the SBA's procurement automated source system, which now contains approximately 13,000 R&D firms, as well as through a source list we developed. NASA's program solicitation reflects our philosophy of centralized program management and decentralized program execution. Specifically, it requires submission of all proposals to our headquarters, where the program office will conduct initial screening to determine the basic qualification factors, such as whether the firm has certified that it is a small business and has met the proposal-size limitation.

Proposals will then be sorted by subtopic, and each subtopic will have a designated manager, an expert in that technical area located at one of the NASA centers. All centers are involved in this program, with a topic list of 26 major areas and a total of 210 subtopics. Proposals will be sent to the appropriate topic manager, who will initially review them to determine if they are, in fact, responsive to the topic designated by the offeror and, if so, have independent technical evaluations performed by scientists and engineers knowledgeable in that particular area. These evaluations will be conducted consistent with the factors listed in the program solicitation.

Individual reviews will be consolidated, and recommendations will be forwarded to the SBIR program office in NASA Headquarters. A board will review all recommendations and make final selections based on recommendations from the centers and on overall considerations such as possible duplication of other research and program balance. The center procurement offices involved will then be directed to award phase I contracts for those proposals selected.

Since SBIR is a new program for NASA, as it is with most other agencies, we have no base from which to predict the volume of proposals that will result. We have, however, planned as much as possible to handle the proposal process efficiently, effectively, and in such a way as to minimize the effort required by offerors. For example, we have eliminated the need for all offerors to read and analyze the numerous required contract clauses and provisions and complete certifications and representations by summarizing simply and in general terms, in the solicitation of the required clauses. Only successful offerors will be required to execute specific detailed requirements.

In summary, I believe we have responded actively and positively to set up an SBIR program that is responsive to the legislation, the needs of the small business research and development community, and NASA's own mission needs.

I would now like to address the second matter of interest to the committee, namely, the amount of funds designated for the fiscal year 1983 SBIR program.

On July 4, 1982, on the landing of *Columbia* at Edwards Air Force Base, Calif., after a 10-year period of development, the test and evaluation flights of the national Space Transportation System were completed, and the President declared the system operational.

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The system is now a national Space Transportation System, operated to fulfill national and international, Government and commercial needs for space transportation. The first operational flight of *Columbia* occurred in November 1982, successfully deploying two commercial payloads into orbit.

With the national Space Transportation System becoming operational, it has changed the character of the Agency in the short term in many respects to where a substantial portion of the Agency's effort will be directed toward assuring regular Space Transportation System flights on an increasing basis. The budget for NASA for fiscal year 1983, submitted on January 20, 1982, anticipated the successful completion of the design, development, test, and evaluation phase of the system and substantially reflected the operational character of the Space Transportation System, as well as those systems directly supporting such operations.

This change in character of the fiscal year 1983 budget request is further clearly reflected in NASA's 1983 Authorization Act, Public Law 97-324, and the House Science and Technology Committee report accompanying that bill.

In NASA's opinion, Public Law 97-219 requires the establishment of a specific small business set-aside program for the purpose of increasing small business participation in Federal research and development programs. It is equally clear to us that the character of the Small Business Innovation Research program defined in the law requires a portion of a Federal agency's research, or research and development, effort be placed with small business firms in two specific phases of research, or research and development, and a third phase involving non-Federal capital for pursuit of commercial applications or non-SBIR-funded production of Government needs.

In preparation for the execution of the small business research program required by the legislation——

Senator TSONGAS. Mr. Chairman, could I interrupt just for a moment? The Foreign Relations Committee is being briefed on El Salvador at 10.

Senator RUDMAN. Would you like to ask a question at this point?

Senator TSONGAS. Just one point. The statement says that NASA believes the language of the statute, including the purposes set forth, is clear on its face as to the intent of this legislation. Did anyone contact the sponsor of the legislation to find out what he had in mind when legislation was adopted?

Admiral EVANS. The statement is based on the legislative history, the hearings that have been held, the committee reports, and the language of the statute itself, plus the knowledge that it came from the research for national needs program of the National Science Foundation, followed by their own SBIR program.

Senator TSONGAS. Mr. Chairman, having read through this as quickly as I could, it is pretty obvious that NASA feels they did what is proper. I do not happen to share that view. Perhaps it might be an alternative to go back. There are a number of vehicles coming up we can attach legislation to. We can perhaps change NASA's percentage or perhaps even raise it above everybody else's, as sort of a lesson. If we are not going to be listened to, I could just as easily stay at home with my children rather than come in here.

I think beyond the specific issue of small business, which is important obviously, there is another issue. That is the role between the administration and the Congress, and whether what we do here is important and whether an attitude is going to be allowed to continue that if you are really clever, you can figure out ways around congressional intent. I think that is a very corrosive kind of attitude, and I would hope that we would address it; I think it is unfortunate that people have to come up and explain it. Because you obviously are the recipients of the irritation, I do not intend that should be the case, but I do think there is another issue that goes beyond your particular roles that we have to give some thought to.

It has happened in a number of places. It happened under President Carter. It happened before he came along. I think to the extent we allow it to continue, we really do undermine the foundation of the separation of powers. I thank the chairman.

Senator RUDMAN. Thank you very much. To answer your question, the answer is no, the sponsor was not contacted. As as matter of fact, only due to staff of mine who happened to be looking at the HUD appropriations did we suddenly discover—we would not be here today; it would have been over—that there was a very fine footnote which had been worked out which had reduced the program to $1.5 million.

No one came and talked to me about it, for obvious reasons. Had they come and talked to me about it, there would have been a problem; There was a problem, and there is going to be more of a problem before this whole episode is over.

Thank you very much, and I appreciate your attending.

Why don't you proceed, Admiral.

Admiral EVANS. Thank you.

In preparation for the execution of the small business innovation research program, required by Public Law 97-219, NASA has reviewed and analyzed Public Law 97-272 making appropriations for fiscal year 1983, to determine accurately the Agency's research effort authorized and appropriated for fiscal year 1983 and that portion of it applicable to the set-aside provisions of the SBIR program.

The appropriation structure of the National Aeronautics and Space Administration is such that research and research and development, as defined in the Small Business Innovation Development Act, is not the total of the appropriation titled "Research and Development" and is so recognized by the chairman of Senate Subcommittee for HUD—Independent Agencies' appropriations.

NASA has only three appropriation accounts: The Research and Program Management account provides funds for the salaries, benefits, and travel of the civil service work force and other administrative expenses; the Construction of Facilities account provides funds for construction, repair, rehabilitation and modification, minor construction, and planning and design of facilities. All other requirements are funded in the Research and Development account. The Research and Development appropriation language states:

For necessary expenses not otherwise provided for, including research, development, operations, services, minor construction, maintenance, repair, rehabilitation,

and modification of real and personal property; tracking and data relay satellite services as authorized by law; * * * and so forth.

Consistent with the language of the NASA appropriations statutes, the emphasis of the work funded by the Research and Development account over the years has shifted from one primarily directed toward research and development to one primarily directed toward production and operation of the Space Transportation System and associated tracking and data acquisition networks. This shift, which has accelerated with the completion in fiscal year 1982 of the Space Shuttle design, development, test, and evaluation program and the beginning of the operational status of the Shuttle is well recognized. The report of the House of Representatives committee authorizing appropriations to NASA for fiscal year 1983 states:

NASA faces a major challenge in shifting the organizational and institutional bias from a research and development character to an operational character.

In fiscal year 1983 and subsequent years, a major portion of the NASA Research and Development account, including most of the Space Transportation System and the Tracking and Data Systems programs, does not qualify as research and development under the definition set forth in the Small Business Innovation Development Act.

The Administration's budget for NASA submitted to the Congress in January 1983 for fiscal year 1984 gives full recognition to the current change in emphasis from research and development to production and operation of the Space Transportation System and associated tracking and data acquisition networks. The special analysis of the budget addresses the change in a like manner.

In view of this, our analysis of Public Law 97-272 and our budget justification lead us to conclude that approximately $1.6 billion of the total of $5.5 billion appropriated under the title "Research and Development" is, in fact for research and research and development as defined in Public Law 97-219; and, thus, the basis from which the set-aside percentage is specified in that law are to be applied.

Faced with the necessity for interpreting two recent statutes, namely the Small Business Innovation Development Act of 1982, enacted on July 22, 1982, and Public Law 97-272, the HUD and Independent Agencies Appropriation Act of 1983, enacted on September 30, 1982, the Agency sought an advance opinion of the Comptroller General of the United States on November 8, 1982.

In order to respond fully to Public Law 97-219, NASA proceeded with all deliberate speed to establish and execute an SBIR program consistent with the Agency's interpretation of the program at a funding level of $3.3 million, while remaining prepared to allocate an additional $7.8 million to be added to the fiscal year 1983 Agency SBIR program should the General Accounting Office interpret these statutues in a different manner.

On March 3, 1983, the Comptroller General rendered an advance decision, No. B209790, on NASA's interpretation of the two public laws. The digest of this decision states:

In calculating its 1983 set-aside for small business innovation research program, NASA should apply the definition of research and development that appears in Small

Business Innovation Development Act, Public Law 97-219, 96 Stat. 217, July 22, 1982, to its budget for fiscal year 1983 without regard to appropriation heading research and development. Since Congress clearly appropriated funds for certain operational activities under that heading, it would be contrary to congressional intent for set-aside to be based on amounts not available for research and development.

I would like to summarize, Mr. Chairman, by saying that in reflection over our 25-year history—and it is our 25th anniversary—we will proceed on this program with the same measure of enthusiasm, the same measure of imagination, and the same measure of thoroughness that has characterized the Agency's performance in the past. It is my expectation, and I am certain I am joined by Mr. Schwenk, our program manager, that, contrary to your feelings, it is probably going to be the best program in the Government, without reservation. That concludes my formal testimony, Mr. Chairman.

Senator RUDMAN. Thank you very much, Admiral Evans.

Admiral, referring to that same House report that you referred to in your testimony, the 1981 report of the House Committee on Science and Technology concerning the history of NASA, I think one thing is very certain from that report. I would like to go over it with you. It is certain that all costs of operation for the Shuttle over the planned 12-year operational period are supposed to be recoverable by NASA from the private sector.

The report states, "As a matter of policy, research and development costs will not be recovered." My question is: Are we now in a phase of the Shuttle where all current costs of the Shuttle are going to be recovered from the private sector?

Admiral EVANS. All current costs will not be recovered, sir. We are in the phase where we are accelerating production, in view of an increased operational flight rate, over the years to satisfy the needs of both Government and national and international requirements for space transportation.

Senator RUDMAN. The intent of Congress, clearly, Admiral Evans, is that if the cost is operational then it should be recovered from the private sector. If the cost is research and development, it is not to be. Now, you are saying that for purposes of this bill, it is operational. Is that correct?

Admiral EVANS. I am saying that the Shuttle is operational, yes, sir.

Senator RUDMAN. If it is operational, why are we not recovering all the costs from the private sector?

Admiral EVANS. We have already begun to recover some of the costs.

Senator RUDMAN. That is not my question. Are we going to recover all of the cost of these Shuttles from here on out from the private sector?

Mr. NEWMAN. The answer is "No," and the reason the answer is no is that basically not all missions are for the private sector. A large number of missions are, in fact, for Government agencies. Those are funded by the agencies that use them. The second major point is that we are in the early phases of operation, and as in any

new system, the early phases cost considerably more on a unit basis than do the later phases. The charging policy in the early part of the program does not fully recover even the portion of the costs attributable to the private sector users.

Senator RUDMAN. At what point will you be recovering all of the operational costs from private sector users? Which flight?

Mr. NEWMAN. I cannot give you a flight number. The policy that we have adopted runs through about 1988.

Senator RUDMAN. It seems to me that, judging by your answer, what you are really saying is that although it is operational, it still has some research and development characteristics attached to it.

Mr. NEWMAN. So far as the operations are concerned, it still has what any industrial manufacturing operation would have, a learning curve.

Senator RUDMAN. Which is associated with research and development, is it not?

Mr. NEWMAN. Which is really associated primarily with quantity of operations. You learn by doing, in other words.

Senator RUDMAN. So what you are saying is, it is no longer research and development; it is operational? You cannot have it both ways, Mr. Newman. It is either one or the other.

Mr. NEWMAN. The Shuttle operations are essentially an operational effort.

Senator RUDMAN. We may disagree, but if that is true, then you ought to be recovering every dime at this point, according to that House report and according to the law. You know the law as well as I do. Now, why you are not, there may be a good reason for it. I am not suggesting that there is not a good reason. But if in fact it is operational and not research and development, then it ought to be recovered 100 percent from the Government users who use it and from the private sector. If it has any research and development characteristics to it at the present time, then at least that amount ought to be allocated under this program. I do not think you can have it both ways.

Mr. NEWMAN. There are two major efforts, in relation to the Shuttle, which we have included in the $1.6 billion. One of those is the development of a filament-wound case with a solid rocket booster to improve the performance of the Shuttle, and that we agree is appropriately research and development. The other is the modification and development work associated with making the Centaur upper stage operable with the Shuttle, and we have included that.

Senator RUDMAN. You are aware of the fact that the subcommittee made the suggestion in the unsuccessful negotiations that preceded this hearing to compromise this issue and to consider a certain portion of this Shuttle as research and development to recognize the very point I have just made and to have the figure midway between what you have finally agreed on and what the committee originally thought: Between the $3 and the $11 million. You are aware of that?

Mr. NEWMAN. Only loosely. I knew there was some——

Senator RUDMAN. Well, I will make sure you are aware of it. I will give you the correspondence after the hearing.

Admiral Evans, let me just go over the history of NASA's testimony before the Senate and the House on what was S. 881. On

July 15, 1981, Leroy Hopkins, Deputy Director of Procurement, appeared before the Senate Small Business Committee on Innovation and Technology, this subcommittee. He stated, and I will quote from the record, "NASA is a research and development agency engaged wholly in high-technology efforts." In arguing against the legislation, from NASA's point of view, at no time did he mention the fact that the bill would not apply to NASA's Shuttle activities because of their non-R&D nature. We cited the figures in that hearing on NASA's budget. At no time was that even discussed. He talked only of plans already made for future appropriations, and of NASA's belief that it was already doing enough for small business. Additionally, he talked of NASA's mission, offering the opinion that NASA was not set up to offer "support" and "assistance" to the small business community in the manner of the National Science Foundation.

Can you tell me, if this was such a concern, why this committee at least was not given the benefit of an understanding that while we were looking at a figure of x, you were looking at a figure that was considerably less than x? Why did he not make that clear, since obviously this is something you must have known at the time.

Admiral EVANS. I would be happy to respond, sir. That was on July 15, 1981, which was fiscal year 1981. The Shuttle research and research and development effort did not conclude until fiscal year 1982. At the point of testimony, either before this committee on the 15th of July or my testimony on the 15th of September before a corresponding subcommittee in the House of Representatives, similar statements were made. At that point of time, discussing the fiscal year 1981 budget which we were in, those statements were quite true. In his testimony, further, Mr. Chairman, Mr. Hopkins stated and I quote:

> Further, we believe that these percentages, as are all other socioeconomic goals imposed upon total appropriation amount, do not consider the extent to which authorizations/appropriations are available for this purpose. For example, in fiscal year 1980, NASA research and development appropriations, including supplemental appropriations for the Space Shuttle, totaled $4 billion. It comprised some 12 major categories broken down into an excess of 100 program line items. Of approximately 89 percent, or of $3.6 billion, placed with business, $2.8 billion, or 77 percent, constituted major contracts or funding actions on existing major programs, such as the Space Shuttle, Spacelab, Shuttle upper stages, Delta, Atlas, Centuar, and Scout vehicles, Space Telescope, Galileo, Landsat, Deep Space Network, and the Space Flight Tracking and Data Network. In the execution or continuation of such programs under the 1980 authorization and appropriation acts, little, if any, latitude exists for the application of the funds involved for other purposes as contemplated by this bill.

This is the same testimony which you quoted from.

Senator RUDMAN. But Admiral, he did not give us a figure that was so enormous. He went over that information, I remember it, but he did not indicate that you were going to be taking about 60 percent of what we thought was your R&D budget out of the total. Let me go to your testimony. I have his right here, but let us talk about your testimony on the 26th of January 1982. This is very interesting, and I would like you to just listen to it carefully. I am sure you have reviewed it before today, but I am going to quote it to you.

Your testimony was with respect to the House counterpart to S. 881. It was before the House Committee on Science and Technol-

ogy. The original House bill, as you know, provided for an allocation of 3 percent of the agency's R&D budget to its SBIR program, which I thought was too high Government-wide. It was too high for NASA, too high for Defense. It was much too high. I fought successfully, with the support of the administration, to reduce it to the 1.25 percent and then, further, to stage it over a number of years starting at two-tenths of 1 percent.

You did not mention at that time that the program would not include the Shuttle activity, but rather I think you assumed that it would, and let me quote your words to you. Your testimony was to the effect that in the fourth year, under the House legislation, NASA's SBIR program would grow to "some $180 million" under the 3-percent program. That is the amount which would result from the application of 3 percent of NASA's projected R&D budget 4 years hence, with no exclusion whatsoever for the Shuttle program.

It seems to me strange that the exclusion was not mentioned at that time, inasmuch as you now argue that 1983 is the year in which all of the program has switched to operational. When you testified before the House committee, you used the figure of $180 nillion, which I think was correct. That was 3 percent of your entire R&D account. It seems to me that at the time you were aware, and you certainly must have been aware in January 1982, of the nature of the change in the Shuttle program. It seems to me that you should have used a far lower figure or, conversely, that figure was correct at the time and your statements here this morning are incorrect.

Again, I do not think you can have it both ways. I would like you to tell me why you used that $180 million figure. It is very accurate; it is 3 percent of your total R&D budget.

Admiral EVANS. At that point in our testimony, were we testifying, as I recall, on H.R. 4326, were we not? I believe it was.

Senator RUDMAN. That is correct, 4326, which had 3 percent. That is correct.

Admiral EVANS. At that point in time, we had a bill not a statute. There were differences between S. 881 and H.R. 4326, some marked differences in a range of areas.

Senator RUDMAN. None in definition, Admiral Evans. The definitions were the same.

Admiral EVANS. The figure, as I recall $180 million, is a flat projection coming off the total budget figure at that time. In January 1982, we were still in DDT&E, as I mentioned, on the Shuttle. Granted, we were forecasting using percentages. We do not know what our budget will be 4 years hence. We do not know at all what our budget will be.

Senator RUDMAN. But that is only 3 months before you now tell us the Shuttle has gone operational. That is 3 months before your testimony this morning says that your Shuttle is operational. It seems to me you knew it then. You should have said to the House committee: Understand that 3 percent of—and whatever the figure would be—would be a great deal less than $180 million. I just claim that the testimony was either right then or was wrong then, and maybe it was wrong and maybe you are right this morning. But it surely, would you not agree with me, would be inconsistent?

Admiral EVANS. I disagree that it is inconsistent, Mr. Chairman.

Senator RUDMAN. We will let the record speak.

Admiral EVANS. I should also say that in terms of knowing for certain that the Shuttle would be operational in July 1982, that we thought *Challenger* would fly in January 1983. We are now in the middle of March 1983: We have come to recognize that, in the character of the endeavors in which we engage, there is a degree of uncertainty. This is why we go at things with a high measure of enthusiasm, on the one hand, tempered by as much realism, caution, and conservatism as we can.

Senator RUDMAN. So your answer is, I guess, that in January of 1982, before that committee, you calculated 3 percent of the entire R&D budget because in January 1982 you were not certain that the Shuttle would be operational by July?

Admiral EVANS. I think I am saying two things. The certainty we had at that point was the fiscal year 1982 appropriations. The budget for fiscal year 1983 was introduced on January 20, 1983. This testimony was on January 26, as I recall, in the budget. I have stated this morning that the budget submitted at that point in time did reflect the anticipated change in the character of the Shuttle operations. It was not to say that it was going to occur with a certainty. It happened to occur on the July 4, with the STS or the final test evaluation flight. It has changed, in the short term, the character of our agency.

Senator RUDMAN. So you believe, and your testimony here this morning, Admiral, would be that it would be an unfair conclusion on the part of this subcommittee to conclude that after the bill became law, NASA then had to find a way—for whatever problems you have, and I have no doubt you have problems—to get a large chunk of this money out from under this program, and this was the way that was found 6 months later. You would say that would be a totally unfair conclusion in the light of that testimony?

Admiral EVANS. Yes, I would.

Senator RUDMAN. Let me just back up a bit. Assuming that is so, at the time you went to the Senate appropriations subcommittee that deals with your budget, the HUD subcommittee, and asked that it be reduced to a $1.5 million program from the $11 million that we thought it was going to be, why did you not mention the change in the character of the Shuttle at that time?

Admiral EVANS. Mr. Chairman, I have no personal knowledge of this: I have no personal knowledge that we went to that subcommittee and requested that.

Senator RUDMAN. You are telling me that this was an issue of the subcommittee itself, without any contact from NASA? I hope you consider your answer carefully.

Admiral EVANS. I did not say that. I said I have no personal knowledge of that.

Senator RUDMAN. None of your staff discussed that with the committee of the Senate Appropriations Committee?

Admiral EVANS. Do you mean my staff or the agency's?

Senator RUDMAN. Your staff.

Admiral EVANS. My staff, that is correct.

Senator RUDMAN. Admiral Evans, on March 9, 1983, the Administrator, James Beggs, made his statement to the Senate Commerce

Committee, Subcommittee on Science and Technology. In describing the budget request for fiscal year 1984, he said:

> The total request is $7.1 billion, of which $5.7 billion is for research and development, $150 million for construction of facilities, and $1.25 billion for research and program management.

In that statement, the Shuttle is included in R&D. How can you claim this morning that it is R&D for one purpose but not for another?

Admiral EVANS. In my statement, Mr. Chairman, I mentioned that NASA has three appropriation accounts, one entitled Research and Development, one entitled Construction of Facilities, and one entitled Research and Program Management. Those are the exact terms that the Administrator used in addressing the accounts structure of NASA within its context of the budget. The budget was submitted in the same accounts structure it has, heretofore, had, namely those three appropriation accounts. I see no inconsistency whatsoever.

Senator RUDMAN. It seems to me, Admiral Evans, that at the very least we have a real problem here with definition. I think that if the Congress is being asked to appropriate money for R&D, it ought to be R&D. If it is operations, it ought to be operations. I expect we will be addressing that.

I also do not understand at all Mr. Beggs' testimony at that same time, essentially saying that the Shuttle is not already 100-percent operational in light of your testimony this morning, because you are essentially saying it is 100-percent operational.

Admiral EVANS. I do not believe we said that, Mr. Chairman.

Senator RUDMAN. We will go look at the record, and I will supply it to you.

Mr. NEWMAN. Excuse me, Mr. Chairman. The explanations given for the request for research and development clearly spell out the amount that is for Shuttle operations. The description of the content of the program clearly identifies that it does include the operational aspects, the production of the vehicles, and all the other activities associated with both the Shuttle operation and with the research and development activities that we conduct.

Senator RUDMAN. I do not have too much more. I want to refer to a statement by the President, when he addressed the issue of the Nation's R&D effort. At his request, the Executive Office of the President, Office of Science and Technology Policy issued a report on the administration's aeronautical research and technology policy in 1982. With respect to the Shuttle system, the report stated:

> The flexibility of launch mode, the all azimuth launch, rapid turnaround—1 or 2 days—are still in the development stage.

Of the six categories of aeronautics technology listed for further research and development effort, the Space Shuttle is specifically listed in five of those. It is listed in the following categories: aerodynamics, materials and structures, propulsion, flight control, and technology integration. The only category the Space Shuttle is not specifically mentioned in is that dealing with subsystems and support.

Of the greatest importance is the fact that in the discussion of the categories of R&D, the report makes the finding that NASA has absolutely no involvement in operational systems. That is very interesting, in light of the testimony this morning. Somebody ought to tell the President that this is not what is happening. Maybe that is not what ought to happen, but at least the President and NASA ought to be consistent.

The importance of this finding is not limited to NASA's Shuttle program. The category in which the administration places NASA's Space Shuttle program corresponds to a category of DOD research known as advanced development. Not only is DOD including advanced development in its SBIR program, which is proper, but there are at least two categories below that which are also included in DOD's SBIR program. I suspect that if NASA is successful in its argument, DOD would, presumably, be justified in cutting its program by approximately 50 percent. This, of course, is one of our concerns.

Admiral EVANS. May I respond to that, sir?

Senator RUDMAN. In a moment. Those watching the situation at NASA have long held that NASA is perhaps a stalking horse for DOD in this particular case. If that were the case, congressional intent would be clearly frustrated. It seems to me that different parts of the administration are saying different things.

You may respond.

Admiral EVANS. I said previously that NASA has three appropriation accounts. One is entitled: "Research and Development"—we can discuss, I suppose, whether the title of that reflects the character of the authorization and appropriations in it—one entitled: "Construction of Facilities," and one entitled: "Research and Program Management."

If I examined the Department of Defense and focused directly on their RDT&E appropriation, it is all research and development. It is listed in eight categories, starting with basic research, applied research, advanced development, engineering development, right up through category 8. That is one appropriation. They also have procurement accounts for procurement of aircraft, construction of ships, procurement of tanks. That is part of our appropriation account entitled "Research and Development." Again, I will not comment upon whether the title is that accurate or not.

If I were to draw the inference that you are saying because this appropriation is entitled "Research and Development," it should cover the entire thing, then I would question whether the construction of a new *Nimitz* carrier is not within the same analogy of research and development, or this year's production of the F-16, or the F-18, or the F-14, or the A-6, whether that is not equally research and development under the position being taken by this committee today.

Senator RUDMAN. I do not think that is the position being taken, but obviously we disagree. The purpose of this hearing was not to have you convince me or me convince you. The purpose of this hearing this morning was to have a record that we intend to make some use of.

I want to read to you, to conclude the hearing, from Spinoff 1982, a very nicely produced document that is circulated to the Congress and the public by NASA. It says that:

> The next 3 years will be a "breaking-in" period for the Shuttle, the principal element of NASA's Space Transportation System. It will be a time for learning more about the system's capabilities and limitations and for developing technology to make possible the advanced missions contemplated. During this period the Shuttle will begin regular operations at modest frequencies, averaging about 10 flights a year.

It seems to me that the first time, Admiral Evans, that we heard about such a large section of the Shuttle not being R&D was about the time that this bill became law. Do you have any recollection of this contention, this separation of your internal R&D account being made other than for purposes of this law?

Admiral EVANS. I think Mr. Newman is perhaps more qualified to address this than I.

Mr. NEWMAN. We have had discussions over at least 2 or 3 years with several of the congressional people, as well as the OMB, about the content of the program. In fact, we made some structural changes in the way we present the program to more clearly identify the operational aspects in case people should want to break down any future action.

There is another point I think I would like to make. When you read the statement you read and you referred to those categories of technology for advanced development on the Shuttle—I am not sure of the statement you were reading, but the categories were exactly those we used in our space research and technology program, and that program we have included in total in the amount which is used in computing the base for the SBIR. We have also included the major development of the solid rocket booster improvement, and we have also included the major development of the Shuttle upper stage, the Centaur, for use in the Shuttle. In that sense, I think we have included the advanced developmental aspect.

Senator RUDMAN. I would point out to you that your own enabling act probably ought to be changed, because the National Aeronautics and Space Act of 1958 states what the purposes of the agency are. It says, amongst others, "the development, construction, testing, and operation for research purposes of aeronautical space vehicles."

Admiral Evans, let me simply say that the hearing proved exactly what I wanted it to prove. We will just take your testimony here this morning and compare it to the testimony of yourself and others from NASA before other committees.

I just want to say to you that I think in order for Government to operate, it has to operate with good faith and good will. I believe that NASA, and possibly correctly, did oppose this bill or argued against it. When it finally became law, it decided that it must find a way to exclude some of the coverage of the law and evidently has been successful in doing so. Now, that may be fine for NASA. However, NASA is part of this administration. This administration has many close questions here—I will not mention them; you know them. We do not operate in an atmosphere of good will when many of us feel, rightly or wrongly, that NASA has been engaged in conduct here that has been designed to thwart. the will of the Con-

gress. That is how many of us feel. I have been a supporter and a friend of NASA for a long time. I shall no longer be a friend and supporter of NASA's program, because frankly, sir, I think NASA has engaged in duplicitous conduct in this particular affair. I thank you very much.

The hearing is adjourned.

[Whereupon, at 10:30 a.m., the committee recessed, to reconvene at the call of the Chair.]

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